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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Daisuke Adachi

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EXAMINER

RAYMOND, BRITTANY L

ART UNIT

PAPER NUMBER

1795

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05/11/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/511,749	<b>Applicant(s)</b> ADACHI, DAISUKE	
	<b>Examiner</b> BRITTANY RAYMOND	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Peng (U.S. Patent Publication 2002/0016075).

Peng discloses a process of patterning an ITO layer that is suitable for fabricating a plasma display panel comprising: placing an ITO layer on a substrate, and performing multiple exposures by passing a pulsed laser beam through a homogenizer, photomask and lens onto a photoresist layer (Paragraphs 0021-0023), as recited in claim 1 of the present invention. Peng also discloses that the substrate is on a movable stage that can move the substrate to a proper position to ensure that the laser beam accurately radiates selected regions of the ITO layer (Paragraph 0023), as recited in claim 1 of the present invention.

Peng teaches every limitation of claim 1 of the present invention and thus anticipates the claim.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peng (U.S. Patent Publication 2002/0016075) in view of Ashida (JP Publication 59-143324) and Asano (U.S. Patent Publication 2002/0195940).

The teachings of Peng have been discussed in paragraph 3 above.

Peng fails to disclose that the photomask is moved by multiple cycles of periodicity.

Ashida discloses a pattern forming method comprising: performing multiple exposures with a photomask and displacing the patterns on the photomask between exposures by one cycle of periodicity (Figures 1-3), as recited in claim 2 of the present invention.

Asano discloses a process of forming a portion of a plasma display panel comprising: applying a metallic paste onto the inner surface of a glass substrate according to a screen-printing method, and drying and baking the pattern so that address electrodes are formed, and each address electrode is formed at a pitch, width and thickness (Paragraph 0069).

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have displaced the patterns on the photomask by multiple cycles of periodicity between exposures, in the process of Peng because Ashida teaches that patterns are commonly displaced by a cycle of periodicity and Asano shows that the exposure depends on the desired width and pitch of the electrodes. Therefore, the number of cycles of periodicity of displacement can be determined by one of ordinary skill in the art without undue experimentation to form the electrodes with desired dimensions.

5. Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peng (U.S. Patent Publication 2002/0016075) in view of Asano (U.S. Patent Publication 2002/0195940).

The teachings of Peng have been discussed in paragraph 3 above.

Peng fails to disclose that each of the structures extends primarily in a lengthwise direction, has a width  $w$  in a widthwise direction orthogonal to the lengthwise direction, and is disposed periodically with a pitch  $p$ , and that the photomask is moved a distance in the widthwise direction, the distance being less than  $w$ , is moved two or more integral times the distance  $p$  in the widthwise direction, is moved a distance in the lengthwise direction, the distance being less than  $p$ , or is moved a distance in the lengthwise direction, the distance being less than  $w$ .

Asano discloses a process of forming a portion of a plasma display panel comprising: applying a metallic paste onto the inner surface of a glass substrate according to a screen-printing method, and drying and baking the pattern so that

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address electrodes are formed, and each address electrode is formed at a pitch, width and thickness (Paragraph 0069), as recited in claim 3 of the present invention.

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have moved the photomask of Peng in the directions and by the distances recited in claims 4-7 of the present invention because these movements depend on the arrangement of the electrodes on the plasma display panel, as taught by Asano, and can be determined by one of ordinary skill in the art without undue experimentation to form the electrodes with the desired dimensions.

6. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peng (U.S. Patent Publication 2002/0016075) in view of Asano (U.S. Patent Publication 2002/0195940) as applied to claims 3-7 above, and further in view of Kang (U.S. Patent Publication 2003/0090205)

The teachings of Peng and Asano have been discussed in paragraphs 3 and 5 above. Asano also discloses that the address electrodes may be formed by applying a silver paste onto the inner surface of the glass substrate (Paragraph 0069), as recited in claims 8-11 of the present invention.

Peng and Asano fail to disclose that silver paste is photosensitive and is exposed after depositing it on the substrate.

Kang discloses a process of forming electrodes on a plasma display panel comprising: printing a photosensitive silver paste onto a substrate, patterning the silver paste, and firing the pattern (Paragraph 0006), as recited in claims 8-11 of the present invention.

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have patterned the silver paste after printing it onto a substrate, as suggested by Kang, in the process of Peng and Asano because Kang teaches that this allows for electrodes to be formed with accurate dimensions.

***Response to Arguments***

7. Applicant's amendments have overcome the objections to claims 1 and 2 that were presented in the last Office Action. Examiner has withdrawn the objections.

8. Applicant's arguments filed 1/15/2009 with respect to the rejection of claim 1 have been fully considered but they are not persuasive.

Applicant argues that Peng does not disclose performing successive first and second exposures of a structure in which a photomask and the plasma display panel are moved relative to each other between the first and second exposures. Peng teaches that the substrate is placed on a movable stage so that the substrate and photomask can be displaced a certain amount between each exposure. It would be known by one of ordinary skill in the art that multiple exposures are being performed because a pulsed laser is being used to expose the substrate. Peng also teaches that the pulsed beam can be redirected to aim at different target regions as well, which would displace a pattern and the substrate.

9. Applicant's arguments, filed 1/15/2009, with respect to the rejection of claim 2 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, due to the amendments made to the claims, a new ground(s) of rejection is made in view of a newly found prior art reference.

Applicant argues that Ashida does not teach that a photomask and the plasma display panel are moved relative to each other by multiple cycles of periodicity included in an exposure pattern, and also within an allowable range of displacement at the position, between the first and second exposures. Ashida teaches that a common displacement between exposures when performing a multiple exposure process is one cycle of periodicity. The reference, Asano, has been added to teach that the desired pitch and width of the electrodes of the display panel determine how the substrate is exposed and would therefore determine the displacement between exposures. This displacement can be determined by one of ordinary skill in the art without undue experimentation to form the electrodes with the desired dimensions.

10. Regarding new claims 3-11, the references, Asano and Kang, have been added to teach the limitations of these claims.

Asano teaches that electrodes of a plasma display panel are formed to have a certain width and pitch. The direction and amount of movement between exposures can be determined by one of ordinary skill in the art without undue experimentation to form the electrodes with desired dimensions. Asano also teaches that address electrodes can be formed using a silver paste.

Kang teaches that electrodes can be formed by printing a paste onto a substrate, and patterning and firing the paste so that a more accurate pattern is formed.

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP



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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRITTANY RAYMOND whose telephone number is (571)272-6545. The examiner can normally be reached on Monday through Friday, 8:30 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Kathleen Duda/  
Primary Examiner, Art Unit 1795**

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